

# ***The US-China cleantech connection: shaping a new commercial diplomacy***

*January 2011*

## ***At a glance***

The US and China, bolstered by aggressive government stimuli, have ascended as leaders in a global race toward cleantech dominance

As clean technologies are adopted on national scales, new “sweet spots” of collaboration for US and Chinese cleantech leaders are emerging

Successful US-China cleantech partnerships will be those that satisfy national energy, environmental and economic growth goals in both countries



The US and China have emerged as global leaders of cleantech, each placing big bets that aggressive backing of emerging industries can achieve multiple goals of environmental protection, resource conservation and economic growth. Cleantech's quick rise among national priorities has effectively created new markets for clean energy and efficiency technologies. Some of these may well take years and even decades to mature. Meanwhile, the US and China are forging ahead with ambitious build-outs in areas such as mega wind and solar plants, smart electricity grids and green transportation infrastructures. Indeed, the potential scale and political urgency of these emerging industries—along with ambitious national targets for roll-outs—bear a semblance of the Space Race of the 1960s. While cleantech companies in both countries are in many cases locked in head-to-head competition to become major players in these developments,

accelerated in the wake of the country's 2006 "Five-Year Plan" which blueprinted cross-sector policies including energy intensity and greenhouse gas reduction targets as well as renewable energy adoption mandates. The plan aims for renewable energy to comprise 15% of the nation's total energy mix and 20% reduction of greenhouse gas emissions (GHG) by 2020. Generous credit terms, tax incentives and even free land have helped spur this growth that, by 2009, led to China becoming the world's largest producer of photovoltaic panels and entered among the top five global manufacturers of wind turbines. The investment is expected to continue pouring in, with one estimate putting China's cleantech market alone at between \$500 billion and \$1 trillion by 2013.<sup>1</sup> Along this trajectory, Chinese companies have eagerly penetrated US markets. Take solar energy. Chinese enterprises combined to capture 46% of

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*“In many areas, and especially in clean energy, the interests of China and the United States are tied together.”—US Commerce Secretary Gary Locke, in a speech at the American Chamber of Commerce in Shanghai on May 19, 2010.\**

*\* US Department of Commerce press release, May 19, 2010.*

there also exist intersections where US and Chinese companies are partnering in ways that play to each other's strengths while closely aligning with national clean energy policies. Successful partnerships could potentially hold significant growth opportunities both within and beyond US and Chinese markets.

### **Sprinting to cleantech dominance**

If a race is afoot, then China is off to a great start. Five years ago, China's cleantech industry was in its infancy. China's cleantech momentous growth

the California photovoltaic panel market in 2009, up from just 2% three years earlier.<sup>2</sup> Overall, Chinese photovoltaic cell and module shipments to the US amounted to 133 megawatts in 2009—or 22.7% of all such shipments—compared to 59 megawatts in 2008.<sup>3</sup>

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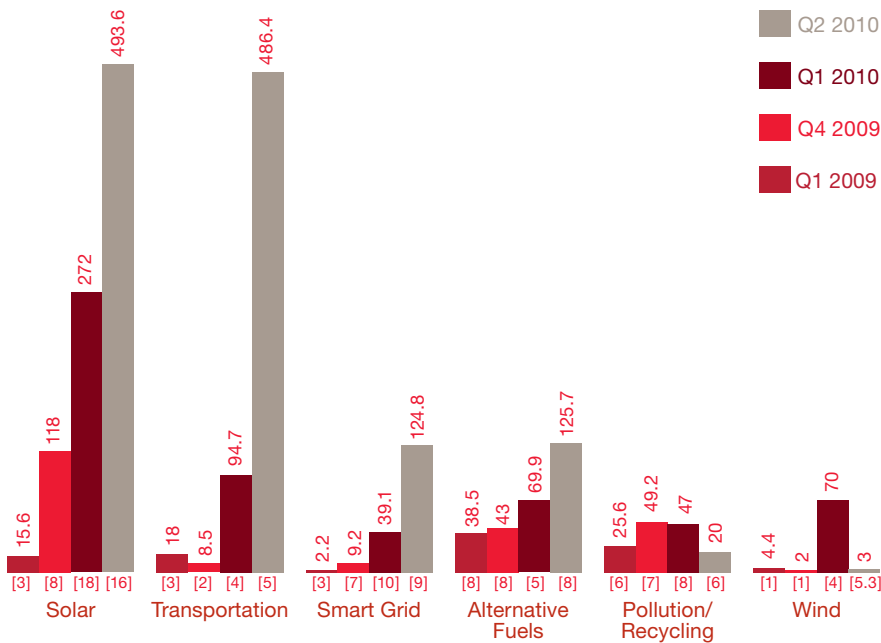
1 "China Greentech Report," The China Greentech Initiative, 2009.

2 "China Snaps Up California Solar Market," Woody, Todd, *The New York Times*, January 14, 2010.

3 "Annual Photovoltaic Module/Cell Manufacturers Survey," US Energy Information Administration, December 2009.

**Figure 1: US venture capital storms back into cleantech in 2010**

(VC investment, in US\$ millions) [number of deals]



Source: PricewaterhouseCoopers/National Venture Capital Association  
MoneyTree Report based on data from Thomson Reuters

## Chinese solar giants eye US market

In early 2010, Suntech Power Holdings Co. Ltd., the world's largest producer of crystalline silicon photovoltaic modules, announced it would build its first manufacturing plant in the US in Goodyear, Arizona, marking it as the first Chinese cleantech company to set up manufacturing facilities in the US.<sup>7</sup> Separately, Suntech announced it could sell up to 200 megawatts of solar panels in 2010, up from 65 megawatts in 2009, giving it nearly a quarter of the US market.<sup>8</sup> Yingli Green Energy, China's second biggest solar producer, as of July 2010, was mulling a decision to build a facility either in Austin, Texas, where it was offered incentives of about \$345,000, or in Phoenix, Arizona, wherein it is eligible to receive a \$4.5 million federal tax credit.<sup>9</sup>

While China has flexed its muscle as a powerhouse cleantech manufacturer in areas such as wind and solar energy, signs are clear that China is limbering up as a significant adopter of cleantech. As China strives to become more than a manufacturer of commoditized cleantech products to a developer and adopter of cleantech infrastructures within its borders, there are signs it will benefit from innovations from other markets, especially those of US companies.

Meanwhile, in the US, \$83 billion was earmarked for cleantech development and deployment in the 2009 American Recovery and Reinvestment Act (ARRA).<sup>4</sup> Also in 2009, China surpassed the US for the first time as the biggest investor in clean energy technologies, with \$34.5

billion, versus \$18.6 billion in the US.<sup>5</sup> And, as the US deliberates on the future of a national carbon trading scheme, China is reportedly prepared to launch a market-based carbon trading plan during its next "Five-Year Plan" (2011–2015), which could further incentivize domestic cleantech adoption.<sup>6</sup> Meanwhile, US venture capital investment—which to a large degree has driven the world's major cleantech innovations in the last decade—rebounded sharply in early 2010, with particular resurgences in the solar, clean transportation and smart grid sectors, which have also received robust support from federal stimulus programs. (Please see Figure 1).

4 "10 Minutes on the Stimulus," PricewaterhouseCoopers, 2009.

5 "Renewable Energy Investment May Reach \$200 Billion in 2010," van Loon, Jeremy, *Bloomberg News*, March 17, 2010.

6 "Carbon trading in pipeline," Jing, Li, *China Daily*, July 22, 2010.

7 "Manufacturing plant to be a showcase for latest generation technologies and equipment," Suntech Power Holdings Co. press release, January 27, 2010.

8 "Suntech aims to triple American sales," Kenellos, Michael, March 29, 2010, *greentechmedia.com*.

9 "City offers \$345K incentive to move to Austin," Dirr, Jacob, *Austin Business Journal*, February 25, 2010.

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*The rapid growth of cleantech industries comes as China shifts as the world's factory to a maturing market keen on expanding its share of intellectual property (IP) assets and establishing global brands.*

**Competing “together”**

Behind the oft-politicized rhetoric of a so-called “cleantech race,” there also exists a deepening, increasingly complex inter-dependence between US and Chinese cleantech firms and the strong likelihood that more US and Chinese companies are finding intersections of collaboration. “China and the US have become more dependent upon one another, as greentech becomes more global—with companies from China, the US and EU working more collaboratively,” said Ellen Pao, partner, Kleiner Perkins Caufield & Byers, a US venture capital firm which invests in cleantech start-ups in China.

The rapid growth of cleantech industries comes as China shifts as the world's factory to a maturing market keen on expanding its share of intellectual property assets and establishing global brands. Achieving these ambitions in many cases goes hand-in-hand with enlisting as partners US companies with the know-how, technology and brands, for example companies offering higher-quality turbine technology, smart grid infrastructures, and electric vehicle

components and charging devices, to name a few. Such partnerships are motivated by joint ownerships and co-development of intellectual property assets, which could lead to two-way paths of reciprocal access to markets. Additionally, making a successful shift from the world's cleantech factory to cleantech adopter could also very well prompt a concurrent movement of Chinese mindset toward Western norms. “As this shift accelerates, I believe there will be great progress made on a number of important fronts, including greater adherence to and judicial enforcement of IP protection laws, as they themselves create IP that will need to be protected. Also, as the Chinese market grows, it will stimulate home-grown innovation, and that innovation will need to be protected in order to market globally,” said Victor Westerlind, general partner of Rockport Capital Partners, a US venture capital firm. “Look at where Korea was in the 1980s and how much the legal system has progressed since then.”

## **Cleantech sweet spots—opportunities to partner**

### **Mega-renewables: too big to go it alone?**

Generous incentives for clean technology investment on the national, regional and local levels (including zero-interest loans, R&D funding, tax incentives and even free land) has driven China to become the world's biggest market for new wind turbines in 2009, adding 13,800 megawatts and more than doubling the number of its wind installations for the fourth straight year. This compares to the US, where the wind installations quadrupled from 2,400 megawatts in 2005 to about 10,000 megawatts in 2009.<sup>10</sup> China's wind installation build-out is expected to continue with plans in place to build-out seven major wind energy farms across the country, including Gansu province's (Northwest China) planned 20-gigawatt wind farm slated for completion in 2020. This extraordinary build-out opens opportunities for foreign firms, especially in IP sharing and transfer. One such example includes A-Power Energy Generation Systems Ltd., a Shenyang-based (Northeast

China) alternative energy developer, which built China's largest wind turbine manufacturing plant. A-Power has licensed technology from Germany's Fuhrlander AG, Denmark's Norwin and in 2009, created a joint venture with GE (General Electric Company) Drivetrain Technologies to make turbine gearboxes.<sup>11</sup>

So far, China has been much more a producer than an adopter of solar energy generation products, producing about one-third of the world's photovoltaic panels in 2009, yet installations in China account for less than 3% of global installations. But that is likely set to change, and there are indications that US companies may well be positioned to help China's ambitious, large-scale renewable energy generation build-outs. Last September, American solar company First Solar, Inc. announced it had agreed with Chinese government officials—through a memorandum of understanding—to build a 2,000-megawatt solar power plant in the Inner Mongolian desert, set to be finished by 2019 and planned as part of a massive energy farm in Ordos City in Inner Mongolia.<sup>12</sup> “The Chinese tend to want to buy locally made solar systems. But

they also know that to compete globally, they need high-quality, cutting-edge technology. This is their motivation to buy from, partner or work with innovative technology companies such as those in the US. For example, some of the [developers of Chinese] utility-scale solar deployments are buying inverters from a portfolio company of ours in Boston,” said Victor Westerlind of Rockport Capital Partners.

### **Clean water, clean air: matters of national urgency**

China has grabbed headlines for developing a renewable manufacturing base in astonishing speed, but the country's serious problems with polluted air and water has placed water management technology high on its priority list. Nearly one quarter of the water in major rivers, including the Yangtze and Yellow Rivers, were ranked too polluted even for agricultural irrigation. As of 2008, China had spent some \$7.5 billion on at least 2,700 water treatment projects.<sup>13</sup>

According to a 2008 national report from the People's Republic of China (PRC) Ministry of Environmental Protection, about 40%, or 320 cities, at the prefecture or larger level had air quality (measuring for particulate matter and sulphur dioxide) ranging from slightly polluted to hazardous. About 70% of the country's electricity power plants are coal-fired, prompting a national scheme to control their emissions. China's 2006 “Five-Year Plan” included clean coal technologies and “efficiency benchmarks” set for the country's top 1,000 enterprises.<sup>14</sup>

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—Victor Westerlind, general partner, Rockport Capital Partners

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10 US Wind Industry Annual Market Report (Year Ending 2009), American Wind Energy Association, 2010.

11 A-Power website [www.apowerenergy.com](http://www.apowerenergy.com)

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12 “First Solar to Team with Ordos City on Major Power Plant in China Desert,” First Solar press release, September 8, 2010.

13 “Water, air pollution in China still serious,” *China Daily*, February 24, 2009

14 “China's Climate Change Initiatives,” November 2009, The Regulatory Assistance Project, 2009.,

Currently, only half of the country's coal plants have emissions control equipment to filter out sulphur compounds and about 60% of newly built plants use new clean technology, with emissions regulations in many cases lax and inconsistent.<sup>15</sup> The deployment of clean coal technology presents a potentially important space for US-China partnership, especially US utilities developing clean coal technology and eager for its commercialization.

Last year, for example, General Electric Company partnered with the Shenhua Group, the world's largest coal producer, to apply clean coal gasification technology at a number of sites in China. Southern Co. licensed its TRIG technology (Transport Integrated Gasification)—which neutralizes low-grade coal to emit less CO<sub>2</sub>—along with engineering, equipment and services to Beijing Guoneng Yinhui Clean Energy Engineering Co., Ltd. to be deployed at an electricity plant in Guondong Province. Additionally, Duke Energy licensed its coal-to-gas technology with China Huaneng Group, the country's largest power producer. Huaneng is also planning to build a \$1 billion plant for carbon capture and storage in Tianjin in 2011, called "GreenGen" along with other Chinese utilities.<sup>16</sup> According to GreenGen's website: "The technical and economic viability will be evaluated to pave the way for large-scale GreenGen power plant's commercialization."

### Smart Grid: China's next cleantech plunge?

China is forecasted over the next decade to spend up to \$100 billion on smart grid development, which, if carried out, could translate in the deployment of up to 300 million smart meters alone.<sup>17 18</sup> One estimate puts China's 2010 smart grid spending at \$7.3 billion.<sup>19</sup> China's State Grid Corp. (which controls about 70% of the country's electricity grids) announced recently it would begin a "large-scale building" of smart power grids in 2011 and projected to be completed by 2020,<sup>20</sup> and that, over the next four years, it plans to invest about \$15 billion in ultra-high-voltage power transmission alone.

This build-out could potentially enlist a plethora of companies—both domestic and possibly foreign—including developers of electronic devices (such as sensors, meters), IT equipment and transmission and distribution automation technologies. Early smart grid leaders in the US—both large established firms, as well as fast-growing start-ups—may well find that they can deploy their technologies in China as well. Intel Corporation, for example, has already been an early mover,

signing a three-year agreement with State Grid Corp. to run grid data on Intel servers and to set up a lab to test Intel computer chip technologies into transmission technologies.<sup>21</sup> Intel has made significant investments in China, including a recent consolidation of its chip-making operations in Chengdu, making that plant, with 2,400 employees, the company's largest chip packaging and testing base in Asia.<sup>22</sup>

General Electric, too, has forged a partnership in smart grid technology with Yangzhou Beichen Electric Equipment Co., a regional arm of China's State Grid Corp., to make smart grid equipment. GE recently announced its smart grid partnership with the city of Yangzhou (about 175 miles northwest of Shanghai) to open a demonstration lab and a city-wide deployment of smart grid technologies including smart meters, automated distribution and in-home energy monitoring displays. Yangzhou's "New Economy and Development Zone," established eight years ago, has reportedly drawn 200 companies from 20 countries.<sup>23</sup> Such successful involvement of US companies in China's smart grid development may well be a result of a willingness to invest in China's developing industrial base while simultaneously selling to Chinese markets.

15 "China Outpaces US in Cleaner Coal-Fired Plants," Bradsher, Keith, *The New York Times*, May 11, 2009.

16 "China's Surprising Clout in Cleantech," Aston, Adam, *Bloomberg Businessweek*, November 19, 2009.

17 "China Moves to Build Smart Grid, GE, Siemens Feel Competition," McGuire, Kelly, TMC.com, May 24, 2010.

18 "Ready or not, here comes smart metering," Allen, Roger, Energy and Efficiency Technology (eetweb.com), January 1, 2010.

19 "Smart Grid Snapshot: China Tops Stimulus Finding," Zpryme Research & Consulting, January 27, 2010

20 "China's power grid operator to cut carbon emissions with smart grid technologies," Xinhua News Agency, April 26, 2010

21 "Cutting the Cost of Smart Grid in China with Intel's Help," Kanellos, Michael, Greentech Media, May 28, 2009.

22 "Intel Consolidates China Operations," tmsnet.com, May 24, 2010.

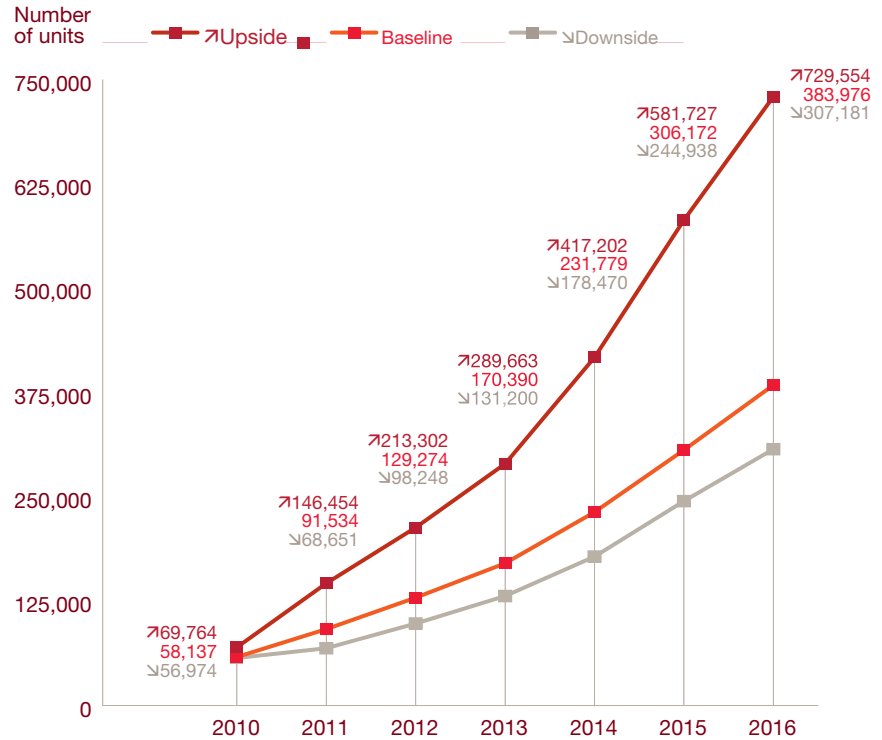
23 "GE Gets Its Smart Grid Foot in a Very Large Door: China," Leeds, David, Greentech Media, January 11, 2010.

## Electric vehicles: China's leapfrog?

PricewaterhouseCooper's Autofacts group estimates that production of alternative fuel vehicles (AFVs)—which includes mild and full hybrids, Plug-in Hybrid Electric Vehicles (PHEVs) and Pure Electric Vehicles (PEVs)—will reach almost 400,000 units annually by 2016. (Please see Figure 2.) However, that number could swell to over 700,000 units in an upside scenario that would include strong government incentives and progressively lower price premiums that would attract China's ever-growing vehicle market, already the largest in the world. The Chinese government has already taken proactive measures to improve their infrastructure, and recently announced a two-year pilot program in several of its major cities (Shanghai, Shenzhen, Hangzhou, Hefei, Changchun among others) that offers significant incentives to consumers who purchase a hybrid (50,000 yuan, or about \$7,300) or electric (60,000 yuan, or about \$8,800) vehicle. Other measures have been taken by the government as well. For example, China's ministries have promoted policies to adopt AFVs in government fleets in 13 cities, and have announced plans for ambitious introductions of electric buses into their public transit infrastructure.

This strong growth potential could very well allow China to leapfrog developed markets like the US and the European Union in terms of the penetration rate of AFVs. While the traditional combustion engine will continue to dominate the global landscape—due in large part to bolt on technologies such as direct

**Figure 2: Chinese alternative fuel vehicle forecast (Hybrid + PEV + PHEV) [2010–2016]**



Source: PwC Autofacts 2010 Q3 Interim Data Release, PricewaterhouseCoopers

injection and turbocharging that allow for smaller displacement, increased power and better fuel economy—should AFVs achieve a market share of 3% to 5% by 2016, it would be nonetheless significant. With Chinese automakers forecasted to expand their global share of electric vehicles from less than 3% in 2010 to 35% in 2020, US and other foreign-based firms may be well-poised to contribute needed

technology and know-how in a myriad of areas including advanced batteries, electric motors, engines, transmissions, and other critical components and sub-systems if—or when—clean vehicles in China gain the traction both automakers and legislators are hoping for.

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*“There is a growing sense that all US cleantech companies must consider a proactive ‘China strategy.’ Every company has a China strategy, whether they know it or not—and, if they don’t, then they have one by default.”*

—Robert Lawrence Kuhn, China advisor and expert, and author of “How China’s Leaders Think.”

## **Strategies for entry into China’s cleantech market**

US cleantech companies that have established links with Chinese partners have observed that business conditions can change quickly—and can vary dramatically from region to region. Given this dynamic landscape, therefore, US companies need to be agile and to recalibrate their strategic approaches to changing policies and conditions. For example, there have been complaints lodged by US and European businesses of protectionist tendencies in China. But, at the same time, according to a recent survey, most US companies doing business in China are nevertheless optimistic about overall prospects going forward in the Chinese market. In a 2010 report, the American Chamber of Commerce-China found that 60 % of its members surveyed said they were optimistic about their five-year business outlook, up from 52% in 2009 and 82% were optimistic about the overall economic future in China, compared to 46% in 2008.<sup>24</sup>

Following are some strategies that are becoming increasingly central to companies mulling a partnership with a Chinese counterpart, or those looking to expand an existing one.

## **Technology transfer: striking the right balance**

For US cleantech companies eyeing an entry to China’s growing domestic cleantech market, knowing what technology to share with a local partner—and even when to make that technology transfer—could have potentially enormous implications. Companies entering the Chinese market—and, indeed, some which have spent considerable time there—can encounter uncertainties surrounding policies and business climate which can make long-term strategies difficult to forge. Companies which offer technology that meets pressing current needs backed by government policies are likely to find willing local partners, especially if that technology is sophisticated. “The opportunities exist in sectors and niches in which Chinese companies absolutely cannot do it themselves. I see needs, for example, in green building and efficiency technology in China,” said Husayn Anwar, managing director of Verdaeon Group, which is focused on sustainable development and renewable energy projects in China.

US companies which share technologies in ways which promote co-developing these and other next-generation technologies with Chinese partners—for both the US and foreign markets—will likely build win-win strategic partnerships. Take eSolar Holdings, LLC, a US developer of concentrating solar power plants, which has partnered with Penglai Electric, a private Chinese electric power equipment maker, through a licensing agreement of its concentrated

solar power (CSP) to help build at least 2 gigawatts of solar thermal power plants in China over the next 10 years. China Shaanxi Yulin Huayang New Energy Co., which will own and operate the plant when completed, said at the time of the deal’s announcement: “To date, eSolar offers the only CSP technology that has demonstrated commercial maturity and economic feasibility.”<sup>25</sup> Such US-China cleantech partnerships, which hinge upon IP co-development and cross-ownership, will become increasingly vital as these partnerships could lay the foundation for market leadership not only in the US and China, but also in other markets.

China’s leadership has also set “indigenous innovation” or home-grown technology as a high priority. In 2006, China’s Ministry of Science and Technology released a “Medium to Long-Term Science and Technology National Plan” setting targets to achieve by 2020, including reducing its dependence on foreign technologies to 30%. The plan also included strategic focuses, which included developing technologies in energy, water resources and environmental protection.<sup>26</sup>

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<sup>24</sup> “American Business in China 2010 White Paper,” American Chamber of Commerce-China, 2010.

<sup>25</sup> “eSolar Partners With Penglai on Landmark Solar Thermal Agreement for China,” eSolar press release, January 8, 2010.

<sup>26</sup> “An Emerging Revolution: Clean Technology Research, Development and Innovation in China,” World Resources Institutes, December 2009.



## Understand China's "microstructures"

US companies are looking beyond the traditional "first stop" cities of Beijing and Shanghai and looking to second- and even third-tier cities for their Chinese headquarters, manufacturing facilities and strategic partnerships. According to the most recent American Chamber of Commerce-China report, 39% of respondents said they were planning feasibility studies or were likely to open a presence in at least one second-tier city.<sup>27</sup> Some inland areas such as Chongqing, Anhui and Jiangsu are booming with 2009 GDP growth exceeding 10%.<sup>28</sup> Take Applied Materials, Inc., for example, which last year opened a thin-film solar technology production and research and development center in Xi'an in Shaanxi province.

"Westerners tend to think of China as homogenous and monolithic, but China is much more variegated, especially on the provincial level, and it's a cauldron of competing interests—a Wild West of individuals and institutions jockeying for position," said Robert Lawrence Kuhn, advisor to multinational and Chinese firms.

Kuhn advises US companies to do their homework and look into the country's microstructure. "For example, companies that don't explore China's diverse provinces miss opportunities. Managers should assess multiple provinces—perhaps three or four, on an initial scan. You then analyze your industry, identify the major players, and seek to ally with compatible interests, commercial and governmental, which complement your corporate strategy."

## Tailor to China's cleantech needs

*The short- and long-term cleantech needs of the US and Chinese markets will, in many cases, differ. What may be ripe for adoption in the US may be premature for China—and vice versa. For example, in the US, there is already a growing market for luxury electric roadsters, smart appliances and remote home energy management technology. "In America, it might be about saving the polar bears, whereas in China, it could mean having clean water and clean food for many," said Robert Brubaker of China-Europe International Business School in Shanghai.*

*In some cases, it is precisely this asymmetry of the two countries' appetite for cleantech adoption that leads to mutually beneficial collaboration, with US technology entering the Chinese market when that entry dovetails with China's immediate needs. According to Dylan Steeg of Intel Capital (Intel Corporation's investment organization): "China has one of the most clear and aggressive energy infrastructure investment plans in the world. We are involved in several energy technology projects in China, with the aim to develop and proliferate technologies that support the country's smart grid ambitions. We are also looking for venture investment opportunities that support China's energy roadmap," added Steeg.*

<sup>27</sup> "American Business in China 2010 White Paper," American Chamber of Commerce-China, 2010.

<sup>28</sup> "The Next China," *The Economist*, July 26, 2010.

## Approach China as a proving ground for new technology

Cleantech investors and companies entering the Chinese markets encounter the country's accelerated productization cycle. "The reason people are excited about launching their products and technology in China is that development costs are low, you can commercialize new technology very quickly and test that technology on a huge market," said Jasper Becker, managing director of Legend Consulting and a specialist in the Chinese energy industry.

As China continues its ambitious build-outs in areas such as distributed renewable energy and, on the horizon, smart grid and electric vehicle infrastructures, foreign firms may well see opportunities to deploy their technology in Chinese markets more rapidly and on a larger scale than perhaps in their home markets, effectively "test-driving" products. The shorter deployment cycles

of progress especially with the capital available from government and private sources," said Westerlind. He added that in addition to solar, Chinese companies may be well-positioned to commoditize other disrupting technology such as conventional wind turbine technology, which is, in turn, now being disrupted by new technologies, such as direct-drive generators replacing gearboxes.

At the same time, Chinese companies are eyeing US market opportunities beyond selling commoditized cleantech products. "Chinese companies doing business in the US is a big story now in China. It's important for Chinese companies to succeed abroad and come back home a hero," said Husayn Anwar, of the Verdaeon Group. "This is true for both state-owned enterprises and private companies, but it is the private Chinese companies which are the ones that really want to do business abroad and will likely do it well." Take Chinese

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*"It is imperative for us to quicken the pace of low-carbon technology development, promote energy efficient technologies and raise the proportion of new and renewable energies in our energy mix... As for developed countries, they should facilitate technology transfer and share technologies with developing countries on the basis of proper protection of intellectual property rights."\**

*\* From full text of Chinese Vice President Xi Jinping's speech at opening plenary of BFA Annual Conference 2010, Xinhua, April 11, 2010.*

in China may well lead to an accelerated commercialization of cleantech products, says Victor Westerlind of Rockport Capital Partners. "China is going through very short and rapid learning cycles which will create waves of innovation. It was the same with how 19th-century American industrialists copied British technology using inferior materials that wore out much faster, prompting the Americans to replace and innovate on a faster cycle," said Westerlind. "The Chinese market will evolve rapidly with these shortened cycles

electric battery and vehicle maker BYD (in which a unit of Warren Buffett's Berkshire Hathaway invested \$230 million, or a 10% stake two years ago) which recently announced it will open its North American headquarters in Los Angeles to help launch its roll-out of electric vehicles in the US—including its e6 model—in 2010.<sup>29</sup>

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<sup>29</sup> "Los Angeles Lures Chinese Auto Firm," Audi, Tamara, *The Wall Street Journal*, April 29, 2010.

## Build trusting relationships of mutual interest

The explosive growth of both the US and Chinese cleantech markets ushers in opportunities for US companies to nurture relationships—not only with large state-owned Chinese companies, but also with a growing crop of small, fast-growing private companies—which potentially could lead to long-standing, cross-border partnerships.

As more foreign companies compete for a foothold in Chinese cleantech markets, it is becoming ever more crucial to establish relationships built on mutual trust and ones which support the motivations of both parties. This is a natural product of devoting more resources to their Chinese operations, hiring more native speakers and local talent who can independently contract and carry out business without a third-party intermediary.

Victor Westerlind, of Rockport Capital Partners, puts it this way: “Companies need to identify what motivates their Chinese partners and develop the

## US-China strategic and economic dialogue priority areas

*Ongoing US-China Strategic and Economic Dialogues (SEDs) between the US and China have furthered commercial ties between the two countries, including one in 2008, which launched a “Ten-Year Energy and Environment Cooperation Framework,” setting goals for joint technological development and commercialization across six priority areas including clean and efficient electricity generation, transmission and distribution, clean and efficient transportation, clean water, clean air and conservation of forest and wetlands ecosystems.<sup>30</sup> The most recent SED, in May 2010, produced a package of initiatives, many of which focused squarely on bilateral cleantech collaboration, including: new dialogues on cooperation on electric vehicle development, closer cooperation between companies on combined heat and power, aviation biofuels and smart grid standards.<sup>31</sup>*

relationship around that because, in many cases, that’ll be more important than a written contract. A few things to keep in mind with China: job creation is often more important than profits; contractual

agreements may be considered less binding and a good relationship more binding than in the US; and your partner’s status in society is extremely important.”

*“What separates the winners from the losers is that the winners invest an appropriate amount of time and energy on the ground, developing key relationships and contacts. Even placing two or three expats in China for nine months can make a very, very big difference in creating one’s own China strategy and showing you’re serious and well-informed.”*

—Richard Brubaker, founder, Collective Responsibility and professor at China-Europe International Business School in Shanghai.

<sup>30</sup> “US-China Ten-Year Energy and Environment Cooperation Framework,” US Treasury Department Office of Public Affairs, June 8, 2008.

<sup>31</sup> “US-China Strategic and Economic Dialogue 2010,” US Department of State press release, May 25, 2010.

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